

Notice of Allowability

Application No.

10/664,996

Examiner

Daborah Chacko-Davis

Applicant(s)

APPELT ET AL.

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 09/17/2003.
2. ☒ The allowed claim(s) is/are 1-15.
3. ☒ The drawings filed on 17 September 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>09/03</u> | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. William N. Hogg on December 6, 2004.

The application has been amended as follows: Claim 1, at line 7, before the word "metal" the word --first-- has been inserted.

Claim 1, at line 10, before the word "metal" the word --first- - has been inserted.

Claim 1, at line 12, before the word "conductive", article "a" has been replaced with --said--.

Claim 1, at line 13, before the word "metal" the word -- first-- has been inserted.

Claim 1, at line 14, before the word "conductive" the article "a" has been replaced with --said--.

Claim 1, at line 15, before the word "metal" the word --first -- has been inserted.

Claim 1, at line 17, after the word "forming" the words "an organic" has been replaced with --a second--.

Claim 2, at line 7, before the word "metal" the word --second-- has been inserted.

Claim 2, at line 11, after the word pattern --;-- has been inserted.

Claim 2, at line 12, before the word "metal" the word --second-- has been inserted.

Claim 2, at line 13, before the word "metal" the word --second-- has been inserted.

Claim 3, at line 1, after the words "wherein the" the word - -first -- has been inserted.

Claim 4, at line 2, before the word "metal" the word --first -- has been inserted.

Claim 4, at line 3, before the word "metal" the word --first -- has been inserted.

Claim 5, at line 2, after the term "ferric chloride" the word "or" has been replaced with --and--.

Claim 8, at line 22, before the word "circuit" the words --plurality of-- has been inserted.

Claim 9, at line 2, the word "conductive" has been replaced with --metal--.

Claim 11, at line 1, before the word "metal" the word --first -- has been inserted.

Claim 12, at line 2, before the word "metal" the word --first -- has been inserted.

Claim 12, at line 3, before the word "metal" the word --first -- has been inserted.

Claim 13, at line 2, after the term "ferric chloride" the word "or" has been replaced with --and--.

Claims 16-19, have been deleted.

The preceding amendments were made to overcome lack of antecedent basis.

Claims 16-19, were deleted because they were directed to a non-elected invention.

2. The following is an examiner's statement of reasons for allowance: Claims 1-15, are allowable over the prior art of record (U. S. Patent No. 5,377,406 (Matsumoto et al), and U.S. Patent No. 5,200,026 (Okabe)) because the prior art of record fails to disclose a method of forming a multilayer circuit board comprising a first metal layer and a second metal layer on opposing surfaces of a first and second dielectric layer respectively, wherein the first metal layer and second metal layer are interconnected by a solid conductive bump, and said first metal layer includes a plurality of conductive bumps and plurality of circuit lines that are formed in one continuous layer and said conductive bumps in the first metal layer are substantially coplanar with each other.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571)272-1385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1756

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd

December 7, 2004.



JOHN A. MCPHERSON
PRIMARY EXAMINER